



The chart below presents data comparing HIV infection to other sexually transmitted infections. These data illustrate that other sexually transmitted infections can pose similar, and sometimes equally great or greater, risks than HIV. Herpes simplex virus type 2 (HSV-2) and human papilloma virus (HPV) are more prevalent than HIV. Gonorrhoea and HPV are far more easily transmissible than HIV during unprotected sexual activity. Like HIV, HSV-2 is not curable. Potential consequences of HPV, gonorrhoea, and HSV-2 include cancer, pelvic inflammatory disease, infertility, and infant death.

HIV, STIs and Relative Risks in the United States

Disease	Prevalence	Associated Risk of Transmission	Infection Outcomes
HIV	0.6%¹	- Infection rate per sexual exposure to HIV:² - Receptive vaginal intercourse: 0.10% - Insertive vaginal intercourse: 0.05% - Receptive oral intercourse: 0.00-0.04% - Insertive oral intercourse: ~0.00% - Receptive anal intercourse: 1.40% - Insertive anal intercourse: 0.065%	- HIV is not curable³ - Untreated HIV infection will almost inevitably lead to illness and premature death⁴ - HIV can be managed as a chronic disease through the use of HAART^{5,6} - HIV-positive individuals can experience a near-normal life span with early detection and treatment⁷
Human Papilloma Virus (HPV)	Low-risk and/or high-risk types: 26.8%⁸	- Median transmission estimate for low- and high-risk types: 40.0% per heterosexual contact⁹ - Transmission rate of the 14 high-risk types of HPV: 43.0%–94.0% per average relationship between discordant heterosexual partners¹⁰	- There are more than forty types of HPV, classified as low-risk or high-risk based on strength of association with cervical cancer¹¹ - High-risk HPV types cause 99% of cervical cancer cases, as well as anal and other genital cancers¹² - The advent of HPV screening and prevention technology has greatly reduced the number of cervical cancer deaths in high-income countries¹³ - In 2007, 4,021 women died of cervical cancer in the United States¹⁴ - Cervical cancer ranks in the top 10 most prevalent cancers among Black, Hispanic, American Indian and Alaska Native women in the United States¹⁵
Gonorrhoea	105.5 cases in women per 100,000 population 91.9 cases in men per 100,000 population¹⁶	- Estimated female to male transmission rate per sexual contact: 25.0%¹⁷ - Estimated male to female transmission rate per sexual contact: 50.0%¹⁸	- Gonorrhoea is treatable with antibiotics¹⁹ - Treating gonorrhoea continues to become more difficult as drug resistance grows – Cephalosporins, currently in use, are the fourth line of treatment for gonorrhoea infection²⁰ - The Centers for Disease Control (CDC) now recommends dual therapy for gonorrhoea utilizing a cephalosporin and either azithromycin or doxycycline²¹ - Untreated gonorrhoea can cause pelvic inflammatory disease, ectopic pregnancy, and infertility²² - Untreated gonorrhoea can increase susceptibility to human immunodeficiency virus (HIV) infection²³
Herpes Simplex Virus Type 2 (HSV-2)	16.2% overall population prevalence²⁴	- Male to female transmission rate per sexual contact: .089%²⁵ - Female to male transmission rate per sexual contact: .015%²⁶	- HSV-2, like all other types of herpes, is not curable²⁷ - Can cause repeated outbreaks of genital sores and lead to infant death if acquired during pregnancy²⁸ - Can increase susceptibility to HIV infection and can increase infectiousness of HIV-positive individuals²⁹

- ¹ *Id* at 202.
- ² Fox J, et al. Quantifying sexual exposure to HIV within an HIV-serodiscordant relationship: development of an algorithm. *AIDS*. 2011;25:1065.
- ³ Basic Information about HIV and AIDS. United States Centers for Disease Control and Prevention. <http://www.cdc.gov/hiv/topics/basic/index.htm>
- ⁴ Broder S. The development of antiretroviral therapy and its impact on the HIV-1 AIDS pandemic. *Antiviral Research*. (2010).
- ⁵ *Ibid*
- ⁶ <http://www.hab.hrsa.gov/tools/primarycareguide/index.htm>
- ⁷ National and local guidelines on the recommended time to start treatment can vary but most high-income guidelines currently recommend treatment at a CD4 count < 350-500 cells/mm³; Lewden C and the Mortality Working Group of COHERE. Time with CD4 count above 500 cells/mm³ allows HIV-infected men, but not women, to reach similar mortality rates to those of the general population: a 7-year analysis. Seventeenth Conference on Retroviruses and Opportunistic Infections, San Francisco, abstract 527, 2010. (Reported on Aidsmap.com); Van Sighem A et al. Life expectancy of recently diagnosed asymptomatic HIV-infected patients approaches that of uninfected individuals. Seventeenth Conference on Retroviruses and Opportunistic Infections, San Francisco, abstract 526, 2010. (Reported on Aidsmap.com); May M et al. Impact on life expectancy of late diagnosis and treatment of HIV-1 infected individuals: UK CHIC.
- ⁸ Prevalences were among women age 14-59. Prevalence of low-risk types was 15.2%, prevalence of high-risk types was 17.8%. Some women were infected with both low-risk and high-risk types. Dunne EF, Unger ER, Sternberg M, McQuillan G, Swan DC, Patel SS, et al. Prevalence of HPV infection among females in the United States. *Journal of the American Medical Association*. 2007;297(8):813-9. <http://jama.ama-assn.org/content/297/8/813.full>
- ⁹ Burchell, A.N., Richardson, H., Mahmud, S.M., Trottier, H., Tellier, P.P., Hanley, J., Coutlée, F., (...), Franco, E.L. Modeling the sexual transmissibility of human papillomavirus infection using stochastic computer simulation and empirical data from a cohort study of young women in Montreal, Canada. *American Journal of Epidemiology*. 2006;163(6):534-543.
- ¹⁰ Bogaards, J.A., Xiridou, M., Coupé, V.M.H., Meijer, C.J.L.M., Wallinga, J., Berkhof, J. Model-based estimation of viral transmissibility and infection-induced resistance from the age-dependent prevalence of infection for 14 high-risk types of human papillomavirus. *American Journal of Epidemiology*. 2010;171(7):817-825.
- ¹¹ Walboomers JM, Jacobs MV, Manos MM, et al. Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *J Pathol*. 1999;189:12
- ¹² *Ibid*; see also <http://www.cdc.gov/std/stats09/other.htm>
- ¹³ United States Cancer Statistics: 1999–2007 Incidence and Mortality Web-based Report.. U.S. Cancer Statistics Working Group. Atlanta (GA): Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute. 2010. Available at: <http://www.cdc.gov/uscs>.
- ¹⁴ *Ibid*
- ¹⁵ American Cancer Society: Cancer Facts and Figures 2011. *American Cancer Society*. 2011.
- ¹⁶ 2009 Sexually Transmitted Diseases Surveillance: Gonorrhea. United States Centers for Disease Control and Prevention. <http://www.cdc.gov/std/stats09/gonorrhea.htm>
- ¹⁷ Chen MI, Ghani AC, Edmunds J. Mind the gap: The role of time between sex with two consecutive partners on the transmission dynamics of gonorrhea. *Sex Transm Dis*. 2008;35:435–444.
- ¹⁸ Hethcote H.W, Yorke J.A. "Gonorrhea transmission dynamics and control." Lecture notes in biomathematics. vol. 56. Springer; Berlin, Germany: 1984.
- ¹⁹ Cephalosporin Susceptibility Among *Neisseria gonorrhoeae* Isolates --- United States, 2000–2010. United States Centers for Disease Control and Prevention. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6026a2.htm?s_cid=mm6026a2_w
- ²⁰ *Ibid*
- ²¹ *Ibid*
- ²² Fleming D, Wasserheit J. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Trans Infect* 1999;75:3--17.
- ²³ *Ibid*
- ²⁴ Prevalence among men and women age 14-49. Genital Herpes - CDC Fact Sheet. United States Centers for Disease Control and Prevention. <http://www.cdc.gov/std/herpes/STDFact-Herpes.htm>
- ²⁵ Wald A, Langenberg AGM, Link K, et al. "Effect of Condoms on Reducing the Transmission of Herpes Simplex Virus Type 2 From Men to Women." *JAMA* 2001; 285:3100-3106.
- ²⁶ *Ibid*
- ²⁷ Genital Herpes - CDC Fact Sheet.
- ²⁸ *Ibid*
- ²⁹ *Ibid*